

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5, 7-9, 11, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-5, 7-9, 11, and 13, claims 1 and 11 recite that the bi-component fibers have an average length of approximately 3 mm and that the bi-component fibers have a length of approximately 3 mm. It is unclear what the scope of “approximately” necessarily entails, as the limitation is qualitative and subjective without further guidance in Applicant's specification as to the scope of the limitation. Additionally, based on Applicant's remarks of November 23, 2011, Applicant argues that an ordinary skilled artisan would interpret an average length of “approximately 3 mm” as encompassing a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm. It is unclear, based on Applicant's disclosure, how arbitrary endpoints of 2.5 mm and 3.4 mm necessarily define the scope of “approximately 3 mm,” as Applicant's specification does not define the limitation in such a manner, and as Applicant has not shown why an ordinary skilled artisan would independently interpret an average length of “approximately 3 mm” as necessarily only encompassing a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,642,601 to Thompson Jr., in view of USPN 5,167,764 to Nielsen and USPN 4,118,531 to Hauser.

Preliminarily, it should be noted that the previous Rejection of August 25, 2011, recited that claims 1-5, 7, 9, 11, and 13 were rejected as obvious over Thompson Jr. in view of Nielsen and Hauser. However, claims 4 and 13 in the Rejection additionally relied on USPN 5,516,580 to Frenette as rendering obvious the claimed limitations. Therefore, although claims 4 and 13 clearly relied on Frenette, the Rejections of those claims should have been separately recited under a new heading. To further clarify the Record, the Rejections of claims 1-5, 7, 9, 11, and 13 as obvious over Thompson Jr. in view of Nielsen and Hauser are maintained, but claims 4 and 13 are recited separately as being further in view of Frenette.

Regarding claims 1-3, 5, 7, 9, and 11, Thompson Jr. teaches a fiber insulation material comprising primary fiber components of a portion of 75% cellulose fibers, a portion of 15% synthetic fibers being crimped fibers, and a portion of 10% bi-component fibers comprising a core and an outer sheathing, the outer sheathing having a lower melting point than the core (Thompson Jr., column 1 line 5 to column 2 line 67, column 15 lines 40-56; additionally, *see for*

example column 6 lines 5-13, column 8 line 38 to column 9 line 6, column 9 line 63 to column 10 line 11, column 13 line 63 to column 14 line 23, column 22 line 45 to column 23 line 24). It should be noted that the springy fibers of Thompson Jr. are within the scope of the crimped and helically shaped crimped fibers, as the recitation of "springy" suggests that the fibers are coil-shaped and crimped in order to have stiffness and resilience to provide increased bulk or loft.

Thompson Jr. does not appear to specifically teach the length of the cellulose fibers and the bi-component fibers, and the length of the crimped fibers.

Regarding the claimed length of the cellulose fibers and the bi-component fibers and the weight of the resulting material, since the cellulose fibers and the bi-component fibers necessarily comprise fiber lengths and the resulting material necessarily comprises a weight, and since the prior art is silent as to each of the fiber lengths and material weight, it would have been necessary and therefore obvious to look to the prior art for conventional fiber lengths and material weights.

Nielsen provides this conventional teaching, showing that it was known in the nonwoven art to form a bonded fibrous web material comprising cellulose fibers and bicomponent fibers, wherein the cellulose fibers have a length from about 1/8 inch to about 1/2 inch (which is equivalent to about 3.175 mm to about 6.35 mm), and the bicomponent fibers have a length from about 1 mm to about 75 mm (Nielsen, column 1 line 9 to column 4 line 68, column 5 lines 35-61, column 9 lines 51-53). Nielsen teaches that the bonded fibrous web material had increased bond strength, greater web uniformity, superior breaking strength and elongation properties (Id., column 1 lines 9-16, column 9 lines 51-53).

It would have been obvious to one of ordinary skill in the nonwoven art at the time the invention was made to form the bonded fibrous web material of Thompson Jr., with the cellulose and bicomponent fiber lengths, such as about 1 to 10 mm and approximately 3 mm, as taught by Nielsen, motivated by the desire of forming a conventional bonded fibrous web material with cellulose and bicomponent fiber lengths known in the art as being predictably suitable in forming bonded fibrous web materials having increased bond strength, greater web uniformity, superior breaking strength and elongation properties.

Additionally, as set forth above, it is unclear what the scope of “approximately 3 mm” necessarily entails. It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Alternatively, it would have been obvious to one of ordinary skill in the insulating material art at the time the invention was made to form the insulating material of Thompson Jr., further varying the bicomponent fiber lengths such that the fiber lengths are approximately 3 mm, as it is within the level of ordinary skill to determine a suitable fiber length based on the desired fiber process used and the desired level of bonding and structural integrity suitable for the intended application.

Regarding the claimed length of the crimped fibers, since the crimped fibers necessarily comprise fiber lengths, and since the prior art is silent as to the fiber length, it would have been necessary and therefore obvious to look to the prior art for conventional fiber lengths.

Hauser provides this conventional teaching, showing that it was known in the fiber insulation material art to form a fiber insulation material comprising synthetic polyester helically shaped crimped fibers having a length between about 2 and 15 centimeters (Hauser, column 1 lines 11-32, column 2 lines 3-21, column 3 lines 31-68, column 5 lines 31-47, column 6 lines 35-59, column 7 lines 27-60). Hauser teaches that forming a web with such fibers adds resiliency, loft and compression resistance to the web. Similarly, Thompson Jr. teaches that the springy synthetic polyester fibers are resilient and provide bulk or loft to the insulation material (Thompson Jr., column 15 lines 30-36).

Therefore, it would have been obvious to one of ordinary skill in the fiber insulation material art at the time the invention was made to form the insulating material of Thompson Jr., wherein the springy polyester fibers are the synthetic polyester helically shaped crimped fibers having a length between about 2 and 15 centimeters, as taught by Hauser, motivated by the desire of forming a conventional fiber insulation material with synthetic polyester fibers known in the fiber insulation material art to predictably improve the resiliency, loft and compression resistance of the fiber insulation material. It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claim 2, Thompson Jr. teaches that the synthetic fibers are provided with fire-retarding chemical (Thompson Jr., column 13 line 63 to column 14 line 23, column 15 lines 30-67, column 22 line 45 to column 23 line 24). It should be noted that Thompson Jr. teaches the benefits of applying fire retardant chemical to the resulting material when additional penetration

of the liquid fire retardant chemical is needed. Therefore, the synthetic fibers are provided with fire-retarding chemical.

Alternatively, it would have been obvious to one of ordinary skill in the insulating material art at the time the invention was made to form the insulating material of Thompson Jr., wherein the synthetic fibers are provided with fire-retarding chemical, as the prior art suggests that additional fire resistance may be imparted to the fibers constituting the insulating material by adding liquid fire retardant chemical to the insulating material, and motivated by the desire of forming a conventional insulating material having the desired fire resistance suitable for the intended application, as providing the synthetic fibers with fire retardant chemical additionally predictably increases the fire resistance of the resulting insulating material.

Regarding claim 3, Thompson Jr. teaches that the cellulose fibers are saturated with the fire-retarding chemical (Thompson Jr., column 9 line 63 to column 10 line 11, column 13 line 63 to column 14 line 23, column 15 lines 30-67, column 22 line 45 to column 23 line 24).

Regarding claim 5, Nielsen teaches that the cellulose fibers having a length between about 3.175 mm to about 6.35 mm (Nielsen, column 3 lines 54-59).

Regarding claim 7, a fiber board material is not positively claimed, as the claimed invention is directed to a fiber insulation material, and the claimed fiber insulation material is not required to have the claimed grammar weight. The claim only appears to require that *when* the fiber insulation is used to manufacture of a fiberboard material, the grammar weight will comprise the claimed grammar weight. Therefore, the claimed limitation is interpreted as an intended use limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably

distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art combination teaches a substantially similar structure and composition (a fiber insulation material comprising the claimed cellulose fibers, crimped fibers and bicomponent fibers, each of the fibers having the claimed lengths and each of the fibers present in the claimed amounts) as the claimed invention, the prior art combination appears capable of performing the claimed use.

Regarding claim 9, Hauser teaches that the crimped synthetic fibers are helically shaped (Hauser, column 1 lines 11-32, column 2 lines 3-21, column 3 lines 31-68, column 5 lines 31-47, column 6 lines 35-59, column 7 lines 27-60).

Alternatively, it would have been obvious to one of ordinary skill in the fiber insulation material art at the time the invention was made to form the insulating material of Thompson Jr., wherein the springy polyester fibers are the synthetic polyester helically shaped crimped fibers, as taught by Hauser, motivated by the desire of forming a conventional fiber insulation material with synthetic polyester fibers known in the fiber insulation material art to predictably improve the resiliency, loft and compression resistance of the fiber insulation material.

Regarding claim 11, Nielsen teaches that the bicomponent fibers have a length of about 1 mm to about 75 mm (Nielsen, column 5 lines 48-53). It would have been obvious to one of ordinary skill in the insulating material art at the time the invention was made to form the insulating material of Thompson Jr., further varying the bicomponent fiber lengths such that the fiber lengths are approximately 3 mm, as it is within the level of ordinary skill to determine a suitable fiber length based on the desired fiber process used and the desired level of bonding and structural integrity suitable for the intended application.

5. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson Jr., in view of Nielsen and Hauser, as applied to claims 1-3, 5, 7, 9, and 11 above, and further in view of USPN 5,516,580 to Frenette.

Regarding claims 4 and 13, Thompson Jr. does not appear to teach that the content of the fire-retarding chemical is between 1 and 30% of the total fiber material composition and that the fire-retarding chemical comprises at least one of Borax, Boric acid, Ammonium sulphate and aluminum sulphate mixed with the synthetic fibers. However, Thompson Jr. teaches that any suitable fire retardant chemical can be applied, for example, a boron composition (Thompson Jr., column 8 line 37 to column 9 line 6). Since Thompson Jr. is silent as to the specific fire retarding chemical and the amount of chemical that is applied, it would have been necessary and therefore obvious to look to the prior art for conventional fire retardant chemicals and amounts.

Frenette provides this conventional teaching, showing that it was known in the insulation material art to form an insulating material comprising cellulosic fibers and synthetic fibers, wherein a fire retardant chemical such as borax, boric acid, ammonium sulphate or aluminum sulfate is typically added at 10 to 30% (Frenette, column 1 lines 7-12, column 2 lines 3-32, column 3 line 4 to column 4 line 6).

It would have been obvious to one of ordinary skill in the insulation art at the time the invention was made to form the insulating material of Thompson Jr., with the fire retardant chemical and in the amounts, as taught by Frenette, motivated by the desire of forming a conventional fiber insulation material with fire retardant chemicals and in amounts known in the insulation art to be predictably suitable in forming fire retardant fiber insulation materials.

Regarding claim 13, the prior art combination teaches that the fire-retarding chemical comprises borax, boric acid, ammonium sulphate or aluminum sulfate mixed with the synthetic fibers (Thompson Jr., column 13 line 63 to column 14 line 23, column 15 lines 30-67, column 22 line 45 to column 23 line 24; Frenette, column 1 lines 7-12, column 2 lines 3-32, column 3 line 4 to column 4 line 6).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson Jr. in view of Nielsen and Hauser, as applied to claims 1-3, 5, 7, 9, and 11, and further in view of USPN 5,858,530 to McCullough.

Regarding claim 8, the prior art combination does not appear to teach that the synthetic fibers are hollow. Since the prior art combination is silent as to the exact structure of the synthetic fibers, it would have been necessary and therefore obvious to look to the prior art for conventional synthetic fiber structures in the fiber insulation material art.

McCullough provides this conventional teaching showing that it was known in the fiber insulation art to form a fiber insulation material comprising synthetic fibers and natural fibers, wherein the synthetic fibers are crimped and/or hollow (McCullough, column 1 lines 8-36, column 9 lines 19-43, column 19 lines 20-30, column 23 lines 1-35).

It would have been obvious to one of ordinary skill in the fiber insulation material art to form the insulating material of the prior art combination, wherein the synthetic fibers are hollow, as taught by McCullough, motivated by the desire of forming a conventional fiber insulation material with hollow fibers which were known in the fiber insulation material art to predictably result in flexible fibers which are cheaper without sacrificing performance.

Response to Arguments

7. Applicant's arguments regarding the 35 U.S.C. 112, second paragraph rejection

Applicant's arguments filed November 23, 2011, have been fully considered but they are not persuasive. Applicant argues that an ordinary skilled artisan would interpret an average length of "approximately 3 mm" as encompassing a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm. It is unclear, based on Applicant's disclosure, how arbitrary endpoints of 2.5 mm and 3.4 mm necessarily define the scope of "approximately 3 mm," as Applicant's specification does not define the limitation in such a manner, and as Applicant has not shown why an ordinary skilled artisan would independently interpret an average length of "approximately 3 mm" as necessarily only encompassing a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm.

Additionally, although Applicant provides a definition of "approximately," the definition does not provide further evidence that approximately 3 mm necessarily only encompasses a calculated arithmetic mean fiber length from 2.5 mm to 3.4 mm.

Additionally, although Applicant views the absence of an objection to the term "about" as an admission that the term "approximately" is not indefinite, the absence of an objection does not render definite the term "approximately," for the reasons set forth above, including Applicant's submissions of November 23, 2011.

8. Applicant's arguments regarding the 35 U.S.C. 103(a) rejections

Applicant's arguments with respect to the Rejection based on Thompson Jr. in view of Frenette and Hauser have been considered but are moot in view of the withdrawal of that rejection.

Applicant's arguments filed November 23, 2011, have been fully considered but they are not persuasive. Applicant argues that Applicant has provided clear evidence within the cited references to rebut the prima facie case of obviousness, by clearly establishing that one of ordinary skill would not be properly motivated to modify the express teachings of Nielsen with a reasonable likelihood of success in obtaining Applicant's presently claimed invention. Examiner respectfully disagrees. Applicant's previous arguments were only directed to the scope of "approximately 3 mm" in regards to Frenette. Applicant has not provided any evidence that one of ordinary skill would not be properly motivated to modify the express teachings of Nielsen with a reasonable likelihood of success in obtaining Applicant's presently claimed invention.

Additionally, the current Rejection does not rely on modifying the teachings of Nielsen, as Nielsen is relied on to modify the teachings of Thompson Jr. As set forth above, Thompson Jr. does not appear to specifically teach the length of the cellulose fibers and the bi-component fibers, and the length of the crimped fibers. However, since the cellulose fibers and the bi-component fibers necessarily comprise fiber lengths and the resulting material necessarily comprises a weight, and since the prior art is silent as to each of the fiber lengths and material weight, it would have been necessary and therefore obvious to look to the prior art for conventional fiber lengths and material weights.

Nielsen provides this conventional teaching, showing that it was known in the nonwoven art to form a bonded fibrous web material comprising cellulose fibers and bicomponent fibers,

wherein the cellulose fibers have a length from about 1/8 inch to about 1/2 inch (which is equivalent to about 3.175 mm to about 6.35 mm), and the bicomponent fibers have a length from about 1 mm to about 75 mm (Nielsen, column 1 line 9 to column 4 line 68, column 5 lines 35-61, column 9 lines 51-53). Nielsen teaches that the bonded fibrous web material had increased bond strength, greater web uniformity, superior breaking strength and elongation properties (*Id.*, column 1 lines 9-16, column 9 lines 51-53).

It would have been obvious to one of ordinary skill in the nonwoven art at the time the invention was made to form the bonded fibrous web material of Thompson Jr., with the cellulose and bicomponent fiber lengths, such as about 1 to 10 mm and approximately 3 mm, as taught by Nielsen, motivated by the desire of forming a conventional bonded fibrous web material with cellulose and bicomponent fiber lengths known in the art as being predictably suitable in forming bonded fibrous web materials having increased bond strength, greater web uniformity, superior breaking strength and elongation properties.

Additionally, as set forth above, it is unclear what the scope of “approximately 3 mm” necessarily entails. It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Alternatively, it would have been obvious to one of ordinary skill in the insulating material art at the time the invention was made to form the insulating material of Thompson Jr., further varying the bicomponent fiber lengths such that the fiber lengths are approximately 3 mm, as it is within the level of ordinary skill to determine a suitable fiber length based on the

desired fiber process used and the desired level of bonding and structural integrity suitable for the intended application.

Additionally, in the current rejection, Frenette is only relied on to teach the fire-retarding chemical and is not relied on to teach the bi-component average fiber length.

Applicant argues that combining the teachings of Thompson Jr. in view of Nielsen, Hauser and McCullough would not have a reasonable likelihood of success in obtaining Applicant's claimed invention. Examiner respectfully disagrees. For the reasons set forth above, and not repeated here, the prior art combination renders obvious the claimed invention.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Chriss can be reached on (571) 272-7783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter Y Choi/
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